

WHAT IS CLAIMED IS:

1 1. A color separation system for generating optical signals for display
2 applications, comprising:

3 an optical illumination source operative to generate an optical beam;

4 a first optically refractive element operative to refract the optical beam to
5 produce an optical spectrum;

6 a selection mechanism operative to separate the optical spectrum into a first
7 optical signal of a first predetermined wavelength range and a second optical signal of a
8 second predetermined wavelength range; and

9 a second optically refractive element operative to temporally separate the first
10 optical signal and the second optical signal.

1 2. The color separation system of claim 1 further wherein said selection
2 mechanism is further operative to separate the optical spectrum into a third optical signal of a
3 third predetermined wavelength range.

1 3. The color separation system of claim 2 wherein the first predetermined
2 wavelength range corresponds to a red region of the optical spectrum, the second
3 predetermined wavelength range corresponds to a green portion of the optical spectrum, and
4 the third predetermined wavelength range corresponds to a blue portion of the optical
5 spectrum.

1 4. The color separation system of claim 1 wherein the optical spectrum is
2 separated into more than three wavelength ranges.

1 5. A color separation system for generating optical signals for display
2 applications, comprising:

3 an optical illumination source operative to generate an optical beam;

4 a first optically dispersive element to generate an optical spectrum from the
5 optical beam;

6 a selection mechanism operated to separate the optical spectrum into a
7 plurality of optical signals, each of the plurality of optical signals characterized by a
8 predetermined wavelength range; and

9 a second optically dispersive element, wherein the plurality of optical signals
10 are temporally separated.

1 6. The color separation system of claim 5 wherein a first of the plurality
2 of optical signals extends over a first wavelength range greater than a second of the plurality
3 of optical signals.

1 7. The color separation system of claim 6 wherein the first of the plurality
2 of optical signals is a white light signal.

1 8. A method of generating optical signals for display applications
2 comprising the steps of:
3 illuminating a first spectral dispersion element with a beam of light from a
4 multispectral light source;
5 passing the beam of light through the first spectral dispersion element to
6 produce a spatially dispersed optical spectrum;
7 separating the optical spectrum into a plurality of spectral components;
8 selecting a plurality of sub-beams from the plurality of spectral components;
9 passing the plurality of sub-beams through a second spectral dispersion
10 element; and
11 generating from the sub-beams a plurality of temporal signals corresponding
12 to said sub-beams.

1 9. The method of claim 8 wherein a first of the spectral components
2 corresponds to a red region of the optical spectrum, a second of the spectral components
3 corresponds to a green portion of the optical spectrum, and a third of the spectral components
4 corresponds to a blue portion of the optical spectrum.

1 10. The method of claim 8 wherein said plurality of temporal signals is a
2 train of optical pulses.